

GREATER YELLOWLEGS *Tringa melanoleuca*

LP: Guaqui, 4 February 1922 (CM 119771).

GRAY-BREASTED SEEDSNIPE *Thinocorus orbignyianus*

CO: Tiraque, 20 August 1929 (CM 120100). This specimen is presumably the basis for the listing of this species from CO by Meyer de Schauensee (1966).

Additional locality records are as follows: *Tachybaptus dominicus* (sc, Comarapa, 10 October 1926, CM 120163); *Anhinga anhinga* (sc, Buena Vista, 15 November 1924 and 15 June 1927, CM 119888, 119973); *Anas cyanoptera* (co, Vacas, 5 January 1927, CM 120246); and *Polyborus plancus* (sc, Buena Vista, 5 September 1929, CM 120554).

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Notes on the diets of *Geotrygon montana* and *Columba caribaea* in Jamaica

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We report here our observations on the diet of *Geotrygon montana* and *Columba caribaea* in the Cockpit Country of Jamaica in June 1983 and August 1984, with analyses of crop and gizzard contents from specimens of *G. montana* taken by mist nets.

The Ruddy Quail-Dove *Geotrygon montana* occurs almost throughout the forests of the West Indies and mainland Neotropics, where it combs the forest floor for seeds and fruits. Gosse (1847) noted Jamaican birds consuming the crushed fruits of Mango *Mangifera indica*, fallen berries of Pimento *Pimento dioica*, Physic Nut *Jatropha curcas* and other oil-rich seeds. In examining stomach contents, Gosse found some individuals filled with the berries of

sweetwood *Nectandra* spp., and one containing small slugs (*Vaginulus* sp.). Jones (1948) observed captive *G. montana* consuming peanuts, Maple Pea *Psium sativum*, earthworms, slugs, small snails and the chrysalis of small blowflies. Skutch (1949, 1964) described *G. montana* as a ground forager mainly dependent on small invertebrates, mentioning that captive birds ate maize. Wetmore (1968) found seeds of pigeon berry *Bourreria* sp. and *Styrax* sp. in specimens from Panama, and believed the populations there were mainly feeding on seeds and drupes. Cruz (1974) observed *G. montana* in Jamaica feeding on fallen fruits of the fig *Ficus trigonata*.

The endemic Jamaican Band-tailed Pigeon *Columba caribaea* on the other hand forages in tree canopies. In fact, Gosse (1847) considered *C. caribaea* the most arboreal of Jamaican columbids. He recorded *C. caribaea* taking the seeds of Wild Star Apple *Chrysophyllum oliviforme*, Sour Sop *Annona muricata*, Thatch *Calyptronoma occidentalis* and mistletoe Loranthaceae. Lack (1976) observed *C. caribaea* feeding on Milkwood *Sapium jamaicense* and quoted other observers in listing foods including Clammy Cherry *Cordia collococca*, bullet *Bumelia* sp., rodwood *Eugenia* sp., fig *Ficus* sp. and *Laurus* sp. (cf. *Ziziphys* sp.).

In short, the few documented observations of the diets of these columbids suggest that *G. montana* is a relatively omnivorous ground feeder, while *C. caribaea* feeds in the canopy on a variety of arboreal fruits.

Study Area

The Cockpit Country is roughly 1800 km² of polygonal karst centred in Trelawny Parish, north central Jamaica. The rugged terrain consists of steep, conical hills separated by "cockpits" up to 180 m deep. We collected and observed *G. montana* and *C. caribaea* near the town of Quickstep (18°15'N, 77°43'W, 380-540 m) in the southern Cockpit Country. Annual precipitation of 2000-3000 mm supports a "wet limestone forest" (Asprey & Robbins 1953) dominated by broadleaved evergreen trees that form an irregular canopy at 9-12 m with emergents up to 30 m or more. An open shrub layer is variable in height and consists mainly of smaller individuals of the canopy species. The herb layer is very sparse in the mature forest and is comprised mainly of ferns and trailing vines. Many of the larger trees support dense populations of epiphytes and lianas.

Mature forest is generally confined to the steep slopes and ridges, the bottomlands being cultivated, grazed or in various stages of recovery. Vegetation species commonly encountered in the slope forest include *Terminalia latifolia*, *Callophyllum calaba*, *Ficus maxima*, *Nectandra antillana*, *N. patens*, *Andira inermis*, *Trichilia moschata*, *Maytayba apetala*, *Guarea swartzii*, *Hibiscus elatus*, *Xylopia muricata*, *Oxandra lanceolata*, *Dendropanax arboreus*, *Coccoloba longifolia*, *Calyptronoma occidentalis* and *Syngonium auritum*. Common colonizers of abandoned clearings in the bottomland include *Nectandra antillana*, *Cecropia peltata*, *Piper* spp., *Miconia* spp., *Conostegia* sp., *Fagara martinicensis*, *Lantana camara*, *Solanum torvum*, *Bocconia frutescens*, *Turpinia occidentalis* and *Pothomorphe umbellata*.

Observations and Discussion

Nineteen specimens of *Geotrygon montana* were collected in mist nets, 15 from mature slope forest and 4 from bottomland second growth. Crops and gizzards were preserved from 10 of these specimens, now housed at the Division of Birds of the Smithsonian Institution. At least 8 plant taxa were

represented, 5 of which have not previously been reported in the diet of the species (Table 1). The one-seeded berries of *Nectandra antillana* (and quite possibly other *Nectandra* spp.) comprised $61 \pm 32\%$ of the dry weight of gizzard contents of these birds, an indication of the dietary importance of this endemic species of tree during this season. Other large fruits included those of *Quiina jamaicensis* (Quiinaceae) and *Xylopia muricata* (Anonaceae), both endemic species, as well as the widespread *Turpinia occidentalis* (Staphyleaceae).

TABLE 1

Crop and gizzard contents from *Geotrygon montana* in Cockpits Country, Jamaica

Plant species	No. of <i>G. montana</i>		% Dry weight of crop contents	% Maximum dry weight of gizzard contents
	crops	gizzards		
<i>Nectandra antillana</i> (and perhaps other <i>Nectandra</i> spp.)	5	8	100	61
<i>Quiina jamaicensis</i>		1	—	74
<i>Bauhinia divaricata</i>		1	—	10
<i>Turpinia occidentalis</i>		2	—	5
<i>Guapira fragrans</i>		1	—	2
<i>Xylopia muricata</i>		2	—	23
<i>Psychotria</i> spp.		4	—	9

No specimens of *Columba caribaea* were taken, but we observed 5-10 individuals of the species feeding daily for several hours at a time in the canopy (25-30 m) of a large *N. antillana* near our camp site. This tree has not been reported previously in the diet of *C. caribaea*.

Although both columbids fed heavily on *Nectandra* fruits, *G. montana* foraged exclusively on fallen fruits, while *C. caribaea* fed only in the canopy.

Both *G. montana* and *C. caribaea* may be important dispersers of relatively large-seeded fruits such as those of *Nectandra antillana* (and other Lauraceae with similar fruits, such as *N. coriacea*, *N. patens* and *Licaria triandra*) and *Xylopia muricata*. Ridley (1930) deemed columbids "the most important dispersers of seeds of any group of birds". Sayle (1924) doubted that seeds survived passage through the columbid gizzard, but Olson & Blum (1968) and Cruz (1974) have demonstrated the viability of some seeds in the crop and gizzard of two columbids, *Geotrygon laurencii* and *Columbina talpacoti*. Probably none of the fragmented *Nectandra* fruits in the gizzards of the birds we examined were viable, but seed dispersal could occur from regurgitation or spilling of crop contents.

N. antillana is a common coloniser of abandoned clearings in Cockpit Country. Seedlings of *Xylopia muricata* are frequent in the slope forest, even in the absence of neighbouring canopy individuals (F. Davis, unpublished data). Such recruitment patterns by large-seeded trees suggest effective avian dispersal and potentially an important ecological role for columbids in this area. Columbids are diverse in the West Indies, particularly in Jamaica, where 9 species occur, yet the inter-relationships of West Indian plants and columbids are poorly understood. Our limited observations suggest that mutualistic relationships may exist between an endemic pigeon (*Columba caribaea*) and an endemic tree (*Nectandra antillana*), as well as between the widespread *Geotrygon montana* and several endemic Jamaican tree species. This

hypothesis could be tested by additional studies in minimally disturbed areas such as the remote sections of Cockpits Country.

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Subspeciation in *Anthus brachyurus* Sundevall, 1850

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The small-sized Afrotropical Short-tailed Pipit *Anthus brachyurus* Sundevall, described from the upper Umlaas R., Natal, on material collected by the Swedish explorer/naturalist J. A. Wahlberg, ranges locally from Natal and Zululand, the Transvaal and Mozambique north to Malaŵi, Tanzania, Uganda, Zambia, southern and eastern Zaïre, Angola, Congo-Brazzaville and southern Gabon. The species affects moist short grasslands, breeding down to near sea level in the southeast of its range in Natal and Zululand, but is in the main a plateau breeder, ranging to as high as 2000 m a.s.l. and above in east-central equatorial Africa. While currently assumed to be largely sedentary, recently assembled evidence suggests that it is only a seasonal breeding visitor to many parts of its range.

Appreciation of the subspecifically important geographical variation in *A. brachyurus* is much influenced by the constraints of grass induced abrasion and solar colour modification, the majority of skins in museum collections being in worn breeding condition (collected September-February); fresh dress is assumed April-July. Currently 2 subspecies are recognised: nominate *A. brachyurus* over most of the species' range; and *A. b. leggei* Ogilvie-Grant, 1906: Mokia, SE Ruwenzori Range, of western Uganda and immediately adjacent eastern Zaïre (*cf.* White 1960: 156). Later, however, White (1961: 80) repudiated his earlier acceptance of the discreteness of *leggei*.